FREQUENCY SYNTHESIZER FOR A WIRELESS COMMUNICATION SYSTEM

ABSTRACT

[0036] A dual path frequency synthesizer is disclosed which includes a controlled oscillator and a phase detector that determines the phase difference between an output signal of the controlled oscillator and a reference signal. The synthesizer also includes a charge pump that is coupled to the phase detector. The synthesizer includes a direct path loop filter which is coupled to a charge pump output. The synthesizer also includes an integrating path loop filter which is coupled to another charge pump output and which has substantially the same topology as the direct path loop filter. The direct path loop filter and the integrating path loop filter are substantially matched with one another. The charge pump pumps charge into the direct and integrating path loop filters in response to the phase difference between the reference signal and the output signal of the controlled oscillator as determined by the phase detector. The controlled oscillator is effectively decoupled from the direct and integrating path loop filters at those times when the charge pump is pumping charge into the filters. This reduces the impact of signals from the charge pump that might otherwise cause degradation in the performance of the controlled oscillator and spurious radiation.